



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,658	04/08/2004	Eric B. Norman	014939-002500	8774
20350	7590	06/08/2005	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			PALABRICA, RICARDO J	
			ART UNIT	PAPER NUMBER
			3641	

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/821,658

Applicant(s)

NORMAN ET AL.

Examiner

Rick Palabrica

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,8,10-12,15,19,24,27 and 30-60 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6,7,9,13,14,16-18,20-23,25,26,28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's election with traverse of Group I (Process of detecting special nuclear materials) in the reply filed on 5/25/05 is acknowledged. The traversal is on the ground(s) that examination of Groups I and II would not place a substantially greater burden on the Examiner. This is not found persuasive because the two groups would require separate searches and examinations, in view of their distinctness from each other, and the two searches would not be co-extensive.

Based on Applicant's election, claims 1-3, 6, 7, 9, 13, 14, 16-18, 20-23, 25, 26, 28 and 29 are readable on the elected group and species.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-3, 6, 7, 9, 13, 14, 16-18, 20-23, 25, 26, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitations "the presence", "the gamma rays" and "the fission products" in the preamble and body of the claim. There are insufficient antecedent bases for these limitations in the claim.

Claim 6 recites the limitation "the resulting fission products" in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "the cessation" in line 2 of the claim. There are insufficient antecedent bases for this limitation in the claim.

Claim 16 recites the limitation "the energy characteristics" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitations "the number" and "the energies" in line 3 of the claim. There are insufficient antecedent bases for these limitations in the claim.

Claim 29 recites the limitations "the presence", "the resulting fission products" and "the fission products" in the preamble and body of the claim. There are insufficient antecedent bases for these limitations in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 6, 7, 9, 14, 16-18, 20-23, 25, 26, 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by any one of Cole et al. (U.S. 5,378,895) or Schoenig et al. (U.S. 4,902,467) or Untermeyer (U.S. 3,636,353).

Cole et al. disclose a method and apparatus for determination of specific special nuclear material (SNM) present in a container (e.g. nuclear weapon), by gamma neutron assay techniques (see col. 1, lines 41+). Their method comprises irradiating a container (i.e., nuclear weapon sample) with neutron to induced fissions, detecting the

Art Unit: 3641

gamma rays emitted by resulting fission products, comparing the detected signals with some threshold energy and half-life values, and determining the specific SNM present by comparison with data on fission fragments (see cols. 3, 4, 5, and 8, as well as claims 5, 10, and 12). The detection includes detecting the energy spectrum of the gamma rays (e.g., see Figs. 4a and 4b).

As to the specific energy threshold in the claims (e.g. claims 9 and 23), see col. 3, lines 65+.

As to the specific half-life threshold in the claims (e.g., claim 26), see Table 1 (for example, ^{115}Pd).

Schoenig et al. disclose a method for non-destructive testing of nuclear fuel rods containing fissile U-235 by neutron irradiation and counting the gamma ray emissions from fissions of U-235 atoms (see Abstract, Fig. 1 and col. 5, lines 25+). Applicants claim language reads on Schoenig et al.'s invention as follows: a) "container" reads on the fuel rod cladding tube; b) "energetic beam" reads on the beam of neutrons emitted by Cf-252 neutron source (see also col. 6, lines 54+); c) "gamma ray detector" reads on either one of the bismuth detectors 42, 44 (see Fig. 1 and col. 6, lines 64+); d) 'comparison " reads on comparison of the test data on the detected gamma rays with engineering specifications (see col. 7, lines 12+). These specifications include those for U-235, and the fission products of U-235 include radioisotopes that inherently emit short-lived and high-energy gamma rays given in Table 1 of Applicant's specification.

The detection includes detecting the energy spectrum of the gamma rays (e.g., see col. 6, lines 65+).

As to claims 6, 7, and 9, the U-235 fissions in Schoenig et al. inherently produce fission products, e.g., ^{87}Br , with half-lives of approximately 1 minute and energies higher than 3 MeV (see, for example, Table of Isotopes Decay Data, <http://1e.lbl.gov>).

As to claim 14, Schoenig et al. disclose detection of gamma rays after cessation of neutron irradiation (see col. 6, lines 62+).

Untermeyer discloses a method and apparatus for nondestructive assay of nuclear reactor fuel containing U-235 or Pu-239 (see Fig. 2). Applicants claim language reads on Untermeyer's invention as follows: a) "container" reads on the fuel element cladding; b) "energetic beam" reads on the beam of neutrons emitted by an accelerator and target (see Fig. 2 and col. 3, lines 41+); c) "gamma ray detector" reads on lithium drift germanium detector (see col. 3, lines 64+ and col. 5, lines 31+)); d) "comparison" reads on comparison of the test data on prompt and delayed fission products with readings from calibrated samples (see claim 2 on col. 6). The calibrated samples include U-235, and the fission products of U-235 include radioisotopes that inherently emit short-lived and high-energy gamma rays given in Table 1 of Applicant's specification. The detection includes detecting the spectral content of the gamma rays (e.g., see claim 4).

As to claims 6, 7, and 9, the U-235 fissions in Untermeyer inherently produce short lived and high-energy gamma rays similar to Schoenig et al.

Art Unit: 3641

4. Claims 1, 2 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Bernard et al. (U.S. 4,897,550) who disclose a method and apparatus for characterization of fissile material contained in a basket 24 by neutron irradiation and detection of fission product gamma rays by a plastic scintillator (see col. 3, lines 7+ and 52+, and claim 1).

5. Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by Untermeyer who uses a deuteron accelerator to produce neutrons (see col. 3, lines 47+).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References F-H further illustrate prior art.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:30-5:00, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3641

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP
June 6, 2005

A handwritten signature in black ink, appearing to read "R. Palabrica". The signature is written in a cursive style with a large initial "R".